ATOMIC ENERGY Letter

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Dear Sir:

Rules of Procedure, before the advisory board on contract appeals of the U. S. Atomic Energy Commission, have now been formulated and are available in the Federal Register of Aug. 30th, 1950. (Superintendent of Documents, Washington 25, D. C. 15¢). This advisory board handles appeals from a decision of an AEC contracting officer in a contract dispute arising under the dispute article of a prime contract or sub-contract. The board was set up in February of this year; five cases are now pending before it. It is a three-man board, composed of Herbert F. Taggart, assistant dean, University of Michigan school of business administration; Shelden Elliott, dean, University of Southern California law school; and Clark C. Vogel, attorney, Riker, Emery and Danzig, Newark, N. J.

A $10 million patent suit against the U. S. Atomic Energy Commission, and its predecessor, the Manhattan Engineer District, has been filed by G. M. Giannini and Co., Inc., Pasadena, Calif., manufacturer. Involved in the suit, which is now pending in Federal Court of Claims, Washington, is a United States patent granted to Dr. Enrico Fermi, and assigned by him to the Giannini firm. The patent covers the production of radioactive substances. The California manufacturer is asking $7½ million from the MED for its use of Fermi's methods prior to 1946, and $2½ million from the AEC for its use after 1946, when the AEC took over control of the U. S. atomic program from the Manhattan Engineer District.

The Fifth National Instrument Conference and Exhibit, to be held at Buffalo, N.Y., will find several manufacturers showing instruments for nuclear work. Beckman Instruments, Inc., S. Pasadena, Calif., are displaying their radioactivity meters; Frederic Flader, Inc., Toledo, Ohio, will show their new Ray-Dec decimal counter, which has found use in nuclear counting applications; Instruments, Inc., Tulsa, Oklahoma, will show their "Gagetron", a remote indicating device using radioactive material to show levels of liquids within tanks; and Streeter-Amet Co., Chicago 13, Ill., will show their scientific and industrial counting devices, finding use in connection with nuclear counting.

Great Britain's efforts to attain useful power from nuclear energy were recently outlined before a meeting of the British Association, Birmingham (England), by Sir John Cockcroft, director of the Atomic Energy Research Establishment, Harwell. He said "feasibility tests" on such power producers were now underway, and he felt they would lead to a working pilot plant in three to five years. Dr. Cockcroft declined to estimate the cost of nuclear power generators, compared with conventional ones, but he emphasized that nuclear power would not prove prohibitively expensive. Capital outlay, for an atomic power station, would be about three times that of a pesent day electrical power generator, he stated, but fuel costs would be at a minimum, and the uranium used would not need replacement for a considerable period.

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AT THE ATOMIC CITIES & CENTERS IN THE UNITED STATES...

ARCO, Idaho- Construction on the chemical separation plant, for this nuclear reactor test station, has now been started by the Bechtel Corporation, San Francisco. A cost-plus-fixed-fee contract is now being negotiated with Bechtel, by the AEC, for this job. Plant building was designed by Foster-Wheeler Corp., New York, who are also working with Oak Ridge National Laboratory on process design. This chemical separation plant will separate fissionable materials from accompanying fission products, after use in Arco's nuclear reactors (now being built), and make the material available for re-use. Since the plant will process the outflow from the several different types of nuclear reactors to be built at Arco, it will draw upon experience gained at Hanford, Oak Ridge, and other installations, with such reactors. For the experimental breeder reactor, however, a departure from the usual processing line will be necessary, to calculate the breeding gain by material balances. Estimated total cost of the chemical processing plant is approximately $16 million, not including the Foster-Wheeler architect-engineering fee, and cost of major site development. (Bechtel Corp., in a $2½ million job here at Arco, are also building the steel, brick, and concrete reactor structure for the experimental breeder reactor, and are installing the control, ventilating, and other auxiliary equipment.)

Contractors have now been asked by the AEC here (P. O. Box 1221, Idaho Falls, Ia.) to bid on a steam plant to be erected at Arco. Work will include erection of a structural steel and light-aggregate concrete block one story building, and installation of steam generating units, air dryers, a 600 kw diesel electrical generating set, etc.

OAK RIDGE, Tennessee- Production schedules on the new K-29 gaseous diffusion U-235 producer now indicate that initial operations may be ready before sufficient electrical capacity is available. This capacity increase would be supplied by Tennessee Valley Authority (TVA), whose biggest customer is the Oak Ridge plant. (In 1951, Oak Ridge electricity requirements will take about one-sixth of TVA's total power sales in that area.) Originally, September, 1951, had been set by the AEC as the earliest date when its new plants would require additional electrical power. Now, with portions of K-29 to go into operation as they are finished, TVA has asked Congress for an additional $28⅛ million, part of which will be used to advance by several months this original September, 1951, target date. Some of the work TVA wants to do includes increasing transmission facilities to Oak Ridge, and installing new generating units at New Johnsonville, Widows Creek, and Cherokee dam 7-14 months ahead of the original dates set for this work.

KNOLLS ATOMIC POWER LABORATORY, Schenectady, New York-Vacuum distillation and re-distillation now takes care of all radioactive contaminated wastes at Knolls Laboratory, Dr. George E. McCullough explained at a radioactive waste symposium of the American Chemical Society in Chicago last week. The disposal unit recently placed in full operation here, he stated, can handle over 2,500,000 gallons of such wastes per year, on a three shift basis, operating full time. At present, it is being used on two shifts, treating 125,000 gallons per month, at an over-all cost of about 14 cents per gallon; full time operation is expected to reduce this to about 11⅛ cents. The waste disposal set-up consists of stainless-steel tanks, of 10,000 gallons capacity, in which the radioactive-contaminated wastes are collected. Then, under partial vacuum, these wastes are distilled; if the condensate still shows radioactivity, it is re-distilled. This cycle is continued until a safe limit of radioactivity in the end product is reached. The radioactive sludge left after distillation is vacuum dried, and stored in stainless steel cans. Ultimately, Dr. McCullough observed, these cans may be imbedded in concrete blocks, and dumped at sea.

This symposium (above) also heard Dr. J. A. Ayres, of Knolls, explain how ion-exchange techniques have been applied, successfully, in laboratory experiments with radioactive contaminated wastes. Dr. Ayres stated that the ion-exchange method enabled him to remove radioactive elements present even in small amounts in very dilute solutions.

NEW PRODUCTS, PROCESSES & INSTRUMENTS...for nuclear work...

FROM THE MANUFACTURERS- Counting rate computer, Model 1600, for use with nuclear scalers or similar high-speed electronic counting devices. Converts information from a scaler or counter into counting rate, which can be recorded continuously on a standard 1 ma recorder. Uses elapsed time between successive output pulses of a counter or scaler to compute actual counting rate. Each reading is recorded independently of previous readings; eliminates "memory effect". Three ranges: 4-400; 40-4000; and 400-40000 counts per minute, using a predetermined count of 100. If predetermined count is 1000, ranges are increased by a factor of 10. Instrument is available with or without recorder; for 110 v.-60 cycle source.--Berkeley Scientific Co., Richmond, Calif.

Type AC, dust filter, based on Hersey reverse-jet principle. Recommended by manufacturer for radioactive dust recovery. Collection efficiencies stated to range from 99.95% to 99.998%, with dust loads from 0.07 to 32 grains per cubic foot, at air-to-cloth ratios of 16 to 27 cfm per square foot, and with pressure drops of 3.5 inches to 6.5 inches water gauge. --The Day Company, Minneapolis 13, Minn.

"Searchmaster", Geiger counter kit. Contains tubes, batteries, resistors, capacitors, Geiger tube, headset and metal case. Illustrated assembly instructions are included.--Science Kits, Ltd., Hollywood 28, Calif.

NEWS & NOTES- Products and services of Radioactive Products, Inc., Detroit, have now been made available both nation-wide and in Canada with the recent appointment by this firm of 8 organizations who are now handling sales of Radioactive's apparatus and service facilities. These sales organizations now representing Radioactive Products (who are manufacturers of electronic instruments to measure radioactivity, and are a research organization engaged in industrial applications of radioactivity) include: Walter H. Bollinger, Pittsburgh, Pa.; C. P. Parson & Co., Seattle, Wash.; W. Cliff McLoud & Co., Denver, Colo; Ritter Sales Co., Chicago, Ill.; Electron Engineering Co., New Orleans, La.; T. R. Reuth Co., San Francisco, Calif.; James L. Highsmith, Durham, N. C.; and Carl A. Stone Associates, Los Angeles, Calif.... In connection with this expansion, an official of the Company stated that it is particularly opportune, especially in view of the accelerated interest by industry in radioactivity as a potential tool, and also in light of the heightened defense program.

Production on a $3,000,000.00 order for nickel plated pipe, placed by the Atomic Energy Commission, has been started by the American Locomotive Co., at its Dunkirk, N.Y., plant. Work has been nearly completed on a similar $1,000,000.00 order, which it received last year, the company states.

Tracerlab, Inc., Boston, manufacturer of nucleonic specialties, has appointed Sidney S. Minault as production manager. Formerly chief production engineer at Ansco, Mr. Minault has had broad experience in electronic production and engineering.

RECENT EXPERIMENTAL WORK- A slow neutron personnel monitoring service, using photographic plates with boron and lithium loaded emulsions, has been developed by E. W. Titterton, and M. E. Hall, of the Atomic Energy Research Establishment, Harwell (England). They said their method proved simple and economical in operation, and sufficiently sensitive to reduce the necessary microscope work to insignificant proportions. It was also found that fast neutron personnel monitoring can be carried out quantitatively by utilizing the proton recoil tracks appearing in the same plates, if the source is monochromatic in energy. The experimenters note, however, that where fast neutrons of widely differing energies are present simultaneously, it is usually a lengthy process to obtain an accurate dose determination. Notwithstanding the difficulties, the method is in use on a small scale at the Atomic Energy Research Establishment, at Harwell.

RADIOISOTOPE APPLICATIONS- Nicotine tagged with radioactive carbon has been produced at the University of Chicago's department of pharmacology under the direction of Dr. E. M. K. Geiling, chairman of this department. Tobacco plants (from which the nicotine was to be extracted), were grown in air containing radioactive carbon dioxide. At full growth, the radioactive nicotine was extracted and purified.

BOOKS & OTHER PUBLICATIONS...in the nuclear energy field...

Supplement No. 5 (September, 1950), to Isotopes Catalogue No. 3 of July, 1949. Covers polystyrene, labeled with carbon-14, which is now obtainable from Oak Ridge's Isotopes Division, in sheet form. Additionally, 6 new carbon-14 labeled compounds are described.--Isotopes Division, USAEC, Oak Ridge, Tenn. (n/c)

Introductory Nuclear Physics, by David Halliday, University of Pittsburgh. Problems and modern facts; explains the philosophical aspects of nuclear physics. Examines assumptions upon which theory is based, and the results predicted by the theory. 540 pages --John Wiley & Sons, Inc., New York 16. ($6.00)

Cobalt-60 Radiography of Castings, by H.R. Isenburger. Direct reading exposure chart, for cobalt-60 applications in non-destructive testing and industrial radiography; accompanying instructional text. A reprint from "American Foundryman", of July, 1950.--St. John X-Ray Laboratory, Clifton, N.J.(n/c)

The Atom and its Nucleus. Structure of the atom; spontaneous and artificial disintegration of its nucleus. (In Italian.) 305 pages. -- Editore Perrella, Rome, Italy. (2000 lire)

*Civil Defense Against Atomic Warfare. A bibliography of medical, biological, and other data pertinent to atomic warfare. 24 pages. Superintendent of Documents, Washington 25, D.C. (10¢)

*Atomic Warfare. Designed for training civil defense workers in Britain, for atomic warfare. --H.M. Stationery Office, London W.C.2, England. (2s.)

*Executive Planning--If an A-Bomb Falls. For the individual responsible for formulating industrial safety programs. --National Industrial Conference Board, New York 17, N.Y. ($1.00)

*In connection with these, and other, non-secret civilian guide books, it is, of course, obvious that the Atomic Energy Act of 1946 prevents dissemination of precautionary measures against what is now considered the most likely atomic weapon for any forthcoming attack on the United States: i.e., radioactive materials, incorporated in dust or sand. Not bombs, they offer such greater military advantages, that those using non-secret guide books may, unknowingly, prepare themselves for the wrong type of atomic warfare. Therefore, extra efforts should be made for protection against these radioactive dusts.

ATOMIC PATENT DIGEST...latest U.S. & British applications & grants...

Method and means for generating extremely high unidirectional potentials by utilizing directly the electrical properties of radioactive emission. The generators may provide high or low potentials at substantial power. Either alpha-or beta-ray emission may be used. Among suggested alpha-emitters are: Polonium-210; Actinium-223; Thorium X-224, and Radio actinium-227. Suggested beta emitters include: Phosphorous-32; Calcium-45; Scandium-46; Iron-59; and others. Means for cooling the generator by air or fluids is provided. By connecting several of the units in series, a multiple stage high voltage D.C. generator may be provided. U. S. Pat. No. 2, 517,120, issued Aug 1, 1950; assigned to Radio Corporation of America, New York.

Electrolytic production of metallic uranium. An improvement in the process for producing metallic uranium by electrolyzing a uranium salt in a fused bath consisting essentially of mixed alkali and alkaline earth halides. In this improvement, anhydrous uranium tetra fluoride is the uranium salt used; it is introduced into the fused bath in the ratio of one part uranium tetra fluoride to three parts of the bath. A temperature is maintained of between 800 degrees C., and 850 degrees C., during the electrolysis. U.S. Pat. No. 2, 519,792, issued Aug. 22, 1950; assigned to the United States of America (USAEC).

Geiger tube, including a container, electrodes in said container, an ionizable gas for the container, and a reservoir containing an ionization quenching material. U.S. Pat. No. 2, 521,315, issued Sept. 5, 1950, to John A. Victoreen; assigned to Victoreen Instrument Co., Cleveland, Ohio.

RAW MATERIALS...radioactive ores and other essentials for nuclear work...

UNITED STATES- Outlining a definite uranium ore buying schedule, which will be effective until March 31st, 1958, Jesse C. Johnson, the USAEC's raw materials operations manager, recently told the American Mining Congress, in Salt Lake City, how these government purchases would be made. The government buying price will be $2.50 to $3.00 per pound of contained uranium oxide, dependent upon grade, and delivered at mill; a haulage allowance may be granted to defray part of this cost. (A development allowance of fifty cents per pound of uranium oxide is included in this price.) Minimum uranium oxide content may be 0.2% to 0.3%, depending upon the type of ore. Payments will, of course, also be made for other valuable constituents of the ore, provided the receiving mill can recover them economically, Johnson stated. These prices, he added, are not for any specific locality, although they are based upon those given in Circular 5; this circular covers only carnotite type ores of the Colorado Plateau. (Circular 5 has also been extended to March 31st, 1958.)

Johnson observed that in the Spring of 1948 there were only 15 individual mining operations employing 55 men on the Colorado plateau. He said that now there are over 200 different mining operations, with more than 1,000 men employed; further, that uranium ore production was at an all time high. Private investment, in mines and mills in this area, in the two year period (1948-50) has amounted to several million dollars, he stated. Six process plants, three of them practically rebuilt, are now operating at capacity; an additional one (by Climax Uranium) is being erected at Grand Junction, Colo.

Utah- Leases on 28 uranium claims in the Circle Cliffs area of Garfield county have been taken by New Park Mining Company, and contractors will develop an open pit mine at the property 43 miles south and east of Escalante, Utah, according to W. H. H. Cranmer, president of New Park. Ores here are tobernite, and carnotite, and yield is expected to average that of other Colorado plateau ores, he added.

Colorado- Newly-formed Uranium Company of America has now acquired the Argo Tunnel, and the Argo Mill, in Idaho Springs, and 12 mining properties in Clear Creek and Gilpin Counties. J. T. Kingsley, of Miami, Fla., president of Norfolk Southern RR., and Charles M. Moon, attorney, of Miami, head the new concern. Gold Uranium Corp., which sold the property to Uranium Company, and has a one-third interest in the new venture, is headed by G. S. Groves, Montclair, N. J. Groves had assembled the properties over the last four years; many of them had been worked periodically for various metals, over the past decade. Typical is the German-Belcher mine, where high-grade pitchblende had been produced from 1911-13.

CANADA- American-Canadian Uranium Co., Ltd., headed by Paul V. McNutt, former Governor of Indiana, has filed an application with the (U.S.) Securities & Exchange Commission to issue in the U.S. 500,000 shares of common stock at $3.50 a share; the net proceeds of about $1½ million will be used for development work. Issue is being floated by First International Securities Co., New York. All claims and concessions now held by American-Canadian, which was organized in September, 1949, were acquired from Pax Athabaska Uranium Mines, Ltd., and the Marmac Syndicate. In addition to Mr. McNutt, other American-Canadian Uranium officers are J. Marvel, Jr., Wilmington, Dela., and E. W. Lee, Bronxville, N.Y. Messrs. Marvel, McNutt, and M. E. Young, of Toronto, comprise the Marmac Syndicate. At the time the properties were transferred to American-Canadian, Pax Athabaska was given an arbitrary value of $180,000.00, and Marmac $60,000. American Canadian common shares (2,400,000), at 10¢ apiece, were given in exchange for the property. Exploratory work is now underway by American Canadian on three concessions and two groups of claims involving about 100 square miles in the Goldfields area, and three groups of claims at Grease river, at the east end of Lake Athabaska. At present, 27 men are employed.

Sincerely,

The Staff,
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